

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No. : 10/747,956 Confirmation : 6209
No.
First Named Inventor : Ulrich SESEKE-KOYRO
Filed : December 31, 2003
TC/A.U. : 1754
Examiner : NGUYEN, NGOC YEN M

Docket No. : 037110.51540D1
Customer No. : 23911

Title : Alkali Metal Fluoro Zincate and The Production
Thereof

REPLY BRIEF

Mail Stop Appeal Brief- Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Appellants submit this Reply Brief in response to the Examiner's Answer dated June 1, 2006.

A fundamental flaw in the Examiner's Answer is the reliance upon the assumption that a particle size or range of particle sizes disclosed for one material composition would be valid or even applicable to a chemically distinct second material composition. Because a reasonable expectation of success does not follow from a blind substitution of one material's preferred property for another, the Examiner's obviousness rejections must fail.

The Examiner's Answer incorrectly assumes that because the primary references of Seseke-Koyro, U.S. 6,432,221 and Lauzon, U.S. 6,105,850, and the secondary references of Popoola, U.S. 5,723,187 and Shimajiri, 4,989,775 each relate to the use of fluxing agents that the particle size teachings of the secondary references can be imputed to the primary references. This assumption ignores a fundamental difference between the primary and secondary references: they relate to completely different materials.

While the claimed alkali metal fluorozincate salts are disclosed by the primary references, these references do not disclose or suggest the claimed alkali

metal fluorozincate particle size. And while the secondary references teach fluxes having preferred particle sizes, they do so only for aluminum-based flux materials. Specifically, the secondary references disclose aluminum fluoride salts and **not** the claimed alkali metal fluorozincate salts. The Examiner's Answer attempts to remedy this crucial difference between the primary and second references by referring to the methods taught by the secondary references for applying flux compositions.

In the first secondary reference of Popoola, the particle size of a potassium aluminum fluoride (KAlF₆) salt is preferably less than 10 micrometers such that, when the salt is applied using a liquid sprayable medium, particles of the potassium aluminum fluoride salt remain in suspension. However, the conclusion drawn by the Examiner's Answer that it would be obvious to obtain alkali metal fluorozincate particles of such a size "because such particle size is desired in the art of using a flux in a brazing process" does not follow from the teaching of Popoola. At best, Popoola suggests that such a particle size is desired to maintain potassium aluminum fluoride salts in suspension.

In attempting to extend the particle size used for one material in one application to another material, the Examiner's answer assumes without justification that successful results will follow based on substitution of the particle size alone. The Examiner's Answer fails to take into account that the claimed alkali metal fluorozincate particles are compositionally different from the flux particles disclosed by Popoola and that compositionally-different fluxes possess different properties including, *inter alia*, solid-liquid surface tension, wettability, solubility and/or particle-particle interaction, all of which will determine how such particles interact with a liquid spray media. In contrast to the conclusion drawn by the Examiner's Answer, it would not be obvious to assume that a particle size that is effective to maintain particles of one composition in suspension would be effective to maintain particles of another, completely different composition in suspension.

In a similar vein, in the second secondary reference of Shimajiri, the particle size of potassium fluoride (KF) and aluminum fluoride (AlF₃) mixtures is

preferably from 2 to 80 micrometers in order for such particles to be well floatable in a furnace. Again, the Examiner's Answer erroneously jumps to the conclusion "that such a particle size is desired in the art of using a flux in a brazing process" when Shimajiri merely teaches that such a particle size is desired to provide potassium fluoride/aluminum fluoride fluxes that are well floatable.

Because a particle size that is effective to provide floatability would depend on other compositionally-dependent properties including, *inter alia*, mass density and/or particle-particle interaction, the Examiner's Answer incorrectly concludes that it would have been obvious to select a fluorozincate flux having the particle size taught by Shimajiri "because such particle size is suitable for dry application[s]."

Based on the teachings of Popoola and Shimajiri, by concluding that it is obvious "to select a proper particle size for the fluxing agent depending on [the] process used," the Examiner's Answer infers too much. The Examiner's Answer ignores the fact that, with respect to the different processes used to apply flux particles, the particle sizes taught by Popoola and Shimajiri are inherently and implicitly linked to the flux compositions taught by these references. Namely, Popoola teaches preferred particle sizes for potassium aluminum fluoride fluxes deposited using a liquid suspension of the flux, and Shimajiri teaches preferred particle sizes for potassium fluoride/aluminum fluoride complexes deposited using a gaseous suspension of the flux.

There is nothing in the record to suggest that the teachings of Popoola and/or Shimajiri relating to aluminum-containing salts could be successfully applied to the fluorozincate materials of the primary references. Pointedly, there is no basis to modify one material based on a preferred property or attribute of a completely different material. On this record, one could not have had a reasonable expectation of successfully forming alkali metal fluorozincate salts having the claimed particle size distributions even if Popoola or Shimajiri were combined with Seseke-Koyro or Lauzon.

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August 1, 2006

In view of the foregoing, Appellants respectfully request that the final rejections be reversed and the application allowed. Submitted concurrently herewith are a Request for Oral Hearing and the appropriate fees.

The Commissioner is hereby authorized to charge any deficiency, or credit any overpayment, to Deposit Account no. 05-1323, Docket No.: 037110.51540D1.

Respectfully submitted,

August 1, 2006



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